and that it "may be used for any purpose for which beef can be used." Such statements are obvious exaggerations, and, far from enhancing the value of a good product, tend to detract from that value in the eyes of thinking persons.

THE BRITISH ANTARCTIC EXPEDITION.

Precautions against Scurvy in the Victualling of the "Discovery."

Mr. Reginald Koettlitz, M.R.C.S.Eng., Senior Surgeon to the British National Antarctic Expedition, writes, under date of December 19th, 1901, from the *Discovery*, then lying at Lyttelton, New Zealand, to give some account of the precautions which have been taken to prevent the outbreak of scurvy on board that ship while in the antarctic seas. That such an expedition is one especially liable to become affected with scurvy will not be questioned, and it is therefore interesting to learn the precautions which the surgeon to the expedition, who has already had some experience in the treatment and prevention of this disease, and who has himself been under such conditions already as are thought to predispose to it, having lived more than three years in high latitudes in the Arctic, has taken in order to prevent the expedition from becoming subject to so dangerous and incapacitating a disease. Mr. Koettlitz writes:

The Etiology of Scurvy.

Scurvy, which used to be not uncommon among people living in England, and was fairly common among sailors until comparatively recently, has now, owing to several causes, become practically a thing of the past, but in other more remote, poorer, and less civilized countries it is quite common still.

In a paper by Vaughan Harley and F. G. Jackson, which was read before the Royal Society,[1] many striking instances are given which bear upon the etiology of scurvy; some experiments also are detailed which tend to bear out certain conclusions, and, to any one interested in the subject, the perusal of this paper would be of special interest, for it is the first time that such views have been published, in England at least. That the experiments then made are not quite conclusive I quite allow, but, from the nature of the case this must be so; indeed, I cannot see how experiments can be made which would be perfectly conclusive, for monkeys are not carnivorous, nor even omnivorous, but for the most part frugivorous animals, and no human beings are available for experiment. Also there is, to my mind, a flaw in these experiments upon the monkeys, for the preserved meats used in the experiments were allowed to become tainted after having been preserved, which condition is very different to that which, in my opinion, is the condition which produces scurvy; the meat in the latter case is meat which became tainted before it was preserved, not after.

I should think that it is a very rare thing, if it ever occurs, for men on an expedition to have offered them by those looking after their mess, tinned meat from a tin which had been opened four or five days or more. The tin is probably always opened upon the day upon which it is served up for a meal and, because in the experiments of Vaughan Harley and Jackson this was not done the experiment is of less value than it might have been.

Tainted Fish and Scurvy.

The evidence given in this paper can, however, be supplemented, for it is well known to the medical officers appointed by the Russian Government that scurvy is a very common disease among the peasants in Northern Russia and Russian Lapland, where everything tends to point to the same conclusion as that in the paper by Vaughan Harley and Jackson. Though these people are able to obtain farinaceous and saccharine foods—though they, to some extent, make use of vegetables and fruits, both fresh and preserved—yet perhaps not so abundantly as among people where the luxuries of life are more easily obtainable, their nitrogenous food consists largely of fish. This fish, however, is generally eaten in a "high" or semi-putrid condition because of an acquired or possibly semi-barbarous taste, as well as because of the necessity, at certain seasons, it is more or less imperfectly preserved. Whatever the cause may be, it is generally eaten in this condition.

To this frequent ingestion of tainted fish without doubt is due the scurvy which is so common among these people; for that want of vegetables, fruit, saccharine, and farinaceous foods does not predispose to nor produce scurvy is perpetually shown by the condition of those Eskimo who never come in contact with Europeans or other people, for these people live exclusively, or very nearly so, upon a meat and fish diet, and never from generation to generation obtain the vegetable and fruit diet which has so often been considered a necessity for the prevention of scurvy.

[1] *Proc. Roy. Soc.*

Norwegian Experience.

That scurvy is chronic ptomaine poisoning came as a brilliant inspiration into the acute mind of Professor Tomp, of Christiania University some years ago, when he weighed the *pros* and *cons* of everything which bore upon the subject, and rejected as untenable all the conclusions and theories which had heretofore been drawn. He arrived at the conclusion that, although the acute form of ptomaine poisoning was well known, a chronic form was unknown; that there must also be a chronic form, and that scurvy must be this chronic form. So good was his reasoning, that the Norwegian Government adopted his advice with regard to the law which provides for the victualling of the Norwegian naval and mercantile marine.

So impressed was also Dr. Nansen with the same, that the choice and careful regulation of the food supply of his *Fram* expedition was entirely based upon it, with the brilliant result that not a man of that expedition suffered during the whole time with the slightest taint of scurvy. Yet, during the whole of the three years that the expedition was away, the men were placed in a far worse position and under worse conditions than any polar expedition has ever been placed in either before or since. The ship was (as is well known) during the whole of the time beset in an ocean of ice, far away from any land; the monotony of the voyage, therefore, must have been appalling—ice to the horizon and sky was almost all these men ever saw, and that for three years! All other arctic or antarctic expeditions have had the sight of land to vary the monotony of an arctic or antarctic landscape; and not only does the land vary the monotony of the outlook, but it also attracts to it birds of many kinds, whose breeding habits, comings and goings as well as migrations, cause interest, and afford sport as well as fresh food; plants also can generally be found upon land, and their peculiarities with regard to flowering and general behaviour also give much interest to observers. These, besides many other points of natural history which the proximity of land furnishes, all tend to break the monotony of a sojourn.

Where land is, again, the current or drift of the sea ice is stemmed back because of the impediment the land furnishes, and this, as well as the influence of the tides, causes the ice to be more readily, and in fact continuously, broken, so that seals can more easily keep their holes open; the submarine shores, abounding with fish, etc., also furnish them with their food, and therefore in the north at least bears are very likely to prowl about and visit such parts of the Polar area. These, with arctic foxes, wolves, ermines, reindeer, musk ox, or other animals, all give interest and vary the monotony of most arctic expeditions. None of this did the members of Nansen's expedition have, and therefore also the fresh game which other arctic expeditions have been able to obtain, if only occasionally, was practically wanting.

Is it not therefore a marked object-lesson, for all who can take it, that there is practically no danger of the members of a polar expedition becoming affected with scurvy, provided always that the preserved foods with which such expedition is supplied are carefully selected so as to be sure that not the slightest taint, or putrefactive change has taken place in any, such as was the case with the food which Nansen's expedition was supplied with.

A Control Experiment.

My experience with the Jackson-Harmsworth polar expedition, which is so closely associated with Nansen's expedition, is also especially striking and, to my mind, convincing. It will be remembered that the ship *Windward* was to have returned at once after having landed the expedition and its

stores. Owing, however, to the lateness of our arrival in Franz Josef Land and to the very early setting in of winter, that year (1894), it was unable to do so, and therefore her crew had to winter in the High North. The expedition proper ate fresh meat regularly at least once a day in the shape of polar bear. The people on the ship had, however, a prejudice against this food, which certainly was not particularly palatable, and insisted, against all advice, upon eating their preserved and salted meat. This meat I occasionally noticed to be sometimes "high" or "gamey," and afterwards heard that it was often so. The result was that, though I visited the ship every day, and personally saw that each man swallowed his dose of lime juice (which was made compulsory, and was of the best quality), the whole ship's company were tainted with scurvy, and two died. We on land, however, of the expedition proper, who never touched lime juice, but ate the fresh meat, and who, moreover, lived there three years instead of the one year passed by those upon the ship, were never in the slightest degree tainted with scorbutic symptoms during the whole of our sojourn.

No Scurvy with Fresh Meat.

That fresh food, whether animal or vegetable, will keep the members of a polar expedition in good health, is well known, and this has been especially shown by Mr. Leigh Smith's expedition, which was wrecked in Franz Josef Land in 1881; for among a crew of twenty-five men who wintered there under the most miserable circumstances, and whose food during that wintering was entirely carnivorous (but fresh) for quite a year, all managed to get back sound and well.

Again, Nansen and Johansen, who were away from their ship and all other food for sixteen months, subsisted for more than a year entirely upon fresh carnivorous food, and they remained sound and well.

That the cause of the outbreak of scurvy in so many polar expeditions has always been that something was radically wrong with the preserved meats, whether tinned or salted, is practically certain; that foods are scurvy-producing by being, if only slightly, tainted is practically certain; that the benefit of the so-called "antiscorbutics" is a delusion, and that some antiscorbutic property has been removed from foods in the process of preservation is also a delusion. That there is no antiscorbutic property in any food or drug is to my mind a certainty. An animal food is either scorbutic—in other words, scurvy-producing—or it is not. It is either tainted or it is sound. Putrefactive change, if only slight and tasteless, has taken place or it has not. Bacteria have been able to produce ptomaines in it or they have not; and if they have not, then the food is healthy and not scurvy-producing.

Precautions as to Preserved Foods.

The principal care, therefore, which the organizers of a polar expedition have to take, in order to be sure that the members of it may remain in sound and fit condition, is to see that the food supply, in the shape of preserved meats especially, is good; this can be done by seeing that the meat is perfectly fresh when it is being tinned, that it is properly tinned, as well as by keeping it under observation after it is tinned for as long a period as possible before the expedition sails.

These precautions are those which have, to a very great extent, been taken with regard to the preserved meats, etc., supplied to the National Antarctic Expedition. They have been inspected and as carefully tested as circumstances would allow, and everything which had even a suspicion of taint has been rejected.

That these precautions will be sufficient to relieve us of the danger of any of us becoming subject to so disastrous a disease as scurvy I have little or no doubt, and if, as is very probable, there will be a sufficiency of fresh game, in the shape of penguins and seals, we can take it as certain that no scurvy will be heard of in connexion with the expedition, however long it may remain in the High South.

Baron von Krafft-Ebing, Professor of Psychiatry of the Psychiatric Clinic in the University of Vienna, has obtained permission from the Austrian Minister of Education to resign his chair. It is stated that he intends to return to Graz, where he was professor from 1873 to 1889. His successor at Vienna will be Professor von Wagner-Jauregg.

THE MEDICAL SERVICES OF WEST AFRICAN COLONIES AND PROTECTORATES.

Formation of a "West African Medical Staff."

We are informed by Mr. Chamberlain, Secretary of State for the Colonies, that it has been decided to amalgamate the medical services of the British West African Colonies and Protectorates into a single service, to be known as the West African Medical Staff. The salaries and other conditions of service of the medical officers have been revised in connexion with the scheme of amalgamation. Particulars of the appointments are contained in a Colonial Office paper entitled *Information for the use of Candidates for Appointments in the West African Medical Staff: Colonial Office, African (West), No. 678.* The main provisions are as follows:

The services amalgamated are those of the Gambia, Sierra Leone, the Gold Coast, Lagos, Southern Nigeria, and Northern Nigeria. All the medical officers for the service will be selected by the Secretary of State for the Colonies, and will be on one list for employment and promotion.

Salary and Allowances.

The grades and salaries for medical officers are shown in the following table:

Grades.	Gold Coast, Southern Nigeria, Northern Nigeria.			Sierra Leone, Lagos.		
	Minimum Salary.	Annual Increment.	Maximum Salary.	Minimum Salary.	Annual Increment.	Maximum Salary.
	£	£	£	£	£	£
Principal Medical Officer	1,000	50	1,200	800	50	1,000
Deputy Principal Medical Officer	700	25	800	—	—	—
Senior Medical Officers ...	600	20	700	600	20	700
Medical Officers	400	20	500	400	20	500

The grades and salaries of the establishment on the Gambia are at present under consideration.

The allowances are as follows:

(a) Duty Pay.—A deputy principal medical officer or senior medical officer will receive duty pay at the rate of £100 a year while acting for the principal medical officer. Duty pay at the rate of £60 a year will also be paid (1) to each deputy principal medical officer or senior medical officer while employed in Ashanti or the northern territories of the Gold Coast; and (2) to not more than two officers of either of those ranks in Northern Nigeria, when similarly employed in outlying districts, at the discretion of the High Commissioner.

(b) Horse or Hammock Allowance.—An allowance of 2s. 6d. a day will be paid to every medical officer for personal conveyance while on duty at his station for any period during which he was required by Government to keep, and has actually kept, a horse, carriers, etc., for the purpose.

(c) Transport of Stores.—The Government will carry free of cost a reasonable amount of stores for every medical officer, the amount in each case being fixed by the local government.

(d) Travelling.—Medical and other officers travelling on duty in a Colony or Protectorate are entitled to repayment of any actual out-of-pocket expenses which they may necessarily have incurred. In some cases in lieu of the repayment of expenses, a travelling allowance is given, which is estimated to cover the average cost of travelling.

(e) Field or Bush Allowance.—An allowance of 5s. a day will be paid to all medical officers, whatever their rank, while employed in the field or bush, away from recognised stations. Officers, while in receipt of this allowance, will not be entitled to any repayment or allowance under (*d*) above.

(f) Allowances on a Military Expedition.—All medical officers, whatever their rank, while employed with a military expedition will be paid an allowance of 10s. a day, and will be given free rations, or an allowance of 3s. a day in lieu of rations. While in receipt of these allowances, medical officers will not be entitled to any repayment or allowance under (*d*) and (*e*) above.

(g) Outfit Allowance.—An allowance of £12 will be paid to every medical officer on first appointment for the purchase of camp outfit (see under "Outfit.")

Leave of Absence, Passages, Etc.

Medical officers will be in general subject to the Colonial Regulations, Chapter XVIII, the main rules in which are:

1. The ordinary tour of residential service is one year, followed by leave with full pay during the voyages to and from England, and for four or to two months in England, according as the officer is returning or not.

2. An officer detained beyond the year receives additional leave with